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ROEDING'S Practical Horticulture



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No. 3



THE OLIVE

*Its Past,
Present
and Future*

Pertinent Facts About the Olive in California. It Promises to Surpass All Other Branches of Fruit Growing in Commercial Importance ▷▷

WE were informed a few days ago by a nurseryman from Oregon, who was visiting Fresno, that we were certainly good boosters for California. It is in the air,—we cannot help it. No country in the world can show such striking development in agriculture and horticulture, and although thirty years ago the growing of fruit was of comparatively little importance, today it outranks in dollars and cents any other industry. Not only this fact is universally conceded, but we are recognized as leading every country in the world for everything pertaining to the industry. Our tools and implements for cultivating and pruning; our methods of harvesting and curing; our advanced ideas on the combating, and very successfully too, the ravages of insect pests; and finally our improved transportation facilities, have all contributed to cause us to be regarded as the great commercial fruit growing center of the world.

The building up of the industry is quite extraordinary when the almost insurmountable obstacles which had to be overcome are borne in mind. Transportation facilities were very unsatisfactory, and the rates were excessive, making it difficult to even reach the eastern and middle west states with our products and compete with imported goods. Further than this, we had to overcome a prejudice which was deeply rooted. Our fruits were held up to ridicule, and even in cases where any fair minded individual should have admitted that the future was bright for California fruits, no olive branch of peace was ever extended. The New York importers were the most violent in their denunciations; they laughed to scorn any likelihood of California ever becoming a competitor of imported fruits. The spirit of the west rose supreme over all these discouragements, one battle was won after another, and today every important fruit industry of Europe has found its Waterloo in California.

The olive and its products suffered more severely from this unjust criticism than any other industry. False reports were circulated as to the methods of making olive oil, and all who were courageous enough to attempt to make green pickled olives were in despair in trying to make their output compare in color with the imported olives and to secure that peculiar flavor so characteristic of the latter. A glance at the imports of olive oil and pickles—and we want to say that the United States is the greatest consumer of pickled olives in the world—is a convincing argument as to what the future holds out to us in this one industry. In 1912 we imported 5,076,357 gallons of green pickles, valued at \$2,303,377.00, and 4,836,515 gallons of olive oil, valued at \$6,170,882.00; and we would mention by the way that there has been a constant and steady increase from year to year in the importation, proving beyond a shadow of a doubt that our foreign element from the south of Europe are heavy consumers of olive products, and that the American people are swinging into line, as con-

sumers first of all, of pickled olives, and particularly ripe fruit, for which California is already famous. The medicinal qualities of olive oil are becoming generally recognized, as is also its value for culinary and table purposes.

Our output is only a drop in the bucket. We are only in swaddling clothes when it comes to production, but we are in the front rank in the quality of both oil and pickles. The name "California" attached to a package of olive oil or pickles means that it is the very best that is to be had, and the men and the firms they represented, who ridiculed the idea that California would ever enter the field as an active competitor with Europe in either of these products, are among our heaviest purchasers. The details of the many failures are only too familiar to us, and it is useless to dwell on them here. We are done with the past, the future is before us, and we triumphantly march forward, unfurl our banner of success, toss our hats into the ring, and are ready to offer our olive products in competition with the world.

Although the states to the southwest of us, as well as certain sections of Mexico, may enter the lists, the name of "California" will be the index of quality. To begin with, olive trees were planted in poor, rocky soils, and

most of the original orchards were started in the coast counties, as it was deemed necessary to have the benefit of the cool, moisture laden breezes of the ocean to grow first class olives. Fortunately for California, outside of a few scale pests the olive is free from disease. The possibility of importing any new disease is very problematical because in the importations of trees made 30 years ago all the leading varieties of Europe of recognized commercial value were introduced, and now the business is established on a firm commercial basis. History is repeating itself, and out of the hundred or more varieties introduced not more than six are recognized as having genuine intrinsic value.

SOILS FOR THE OLIVE.

It is quite possible to grow oil olives on poor rocky soils, but the growth is slight and the production is limited, so that it is a waste of time with the thousands of acres of fine land available for cultivation in California, to select locations which will not contribute the best returns for the money, labor and time expended in bringing the orchard into bearing. We are firmly of the opinion that many of the so-called dry lands of the Sacramento and San Joaquin valleys which are not irrigable will eventually, considering their remarkable fertility, become horticultural paradises

through the culture of certain products which have adapted themselves to similar locations and climatic conditions, both in Europe, Africa and Asia.

One of the most remarkable of the dry land cultures has been graphically described in Bulletin No. 125, by Mr. Thomas H. Kearney, physiologist in charge of alkali and drought resistant plant breeding investigations, in a bulletin entitled "Dry Land Olive Culture in Northern Africa." This immense plantation, comprising 475,000 acres and containing over 3,000,000 trees, is located around the city of Sfax, about 200 miles south of Tunis. This was the acreage devoted to olives at that time, and it undoubtedly has increased very rapidly, because the French government has been offering for a number of years a fixed annual bounty to all olive growers, so that the advancement in this industry has been very marked, indeed. According



A scene on the Roeding Place in harvest time. Trees loaded to the guards, and are carrying from 300 to 400 pounds to the tree and not a single prop is used to support the branches. Results to be proud of.

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to Mr. Kearney, during the 10 years from 1896 to 1905 the yearly average output was more than 1,000,000 gallons of oil per year. This olive, known as the Chemlaly, was introduced by the United States Department of Agriculture, and we have been propagating it for several years. The tree is a rapid, upright grower, and very productive. The olives are small and only fit for oil purposes. Our trees have not been planted under the same conditions as exist in their native habitat, but in our experimental grounds they have sufficiently demonstrated all the claims which were enumerated by Mr. Kearney.

Their first orchards were planted about 1840, and when the French government occupied Sfax in 1881 the orchards at that time did not cover more than 45,000 acres. In the early days the trees were set 80 feet apart, but in recent years this has been changed to 60 feet. Trees were irrigated by hand the first few years, and after this the vigorous growth of the trees was maintained by intense cultivation. The annual rainfall does not exceed 8 to 9 inches.

It is useless to attempt to grow olives for pickling purposes except on land where irrigation can be practiced. Olives will adapt themselves to a great variety of soils, they find conditions congenial to their successful culture on hard pan, even where it comes close

A one year old olive tree with its entire seasonal growth. This is as it should be. Note the amount of growth that has been cut off and also that all the branches where there was one having an upward tendency was allowed to remain but severely pruned.



made on all the other roots. After this is done they should be puddled. When the tree is planted it should stand at least a couple of inches deeper than in the nursery rows. Allow the tree to grow without much interference the first year, for the more vigorous the new growth and the more of it, the stronger will be the root development. The first winter after planting trim all the growth off except 4 or 5 branches close to the head and have these properly distributed, as they will ultimately form the main frame work branches. Cut off two-thirds of their growth. The second winter trim the tree in such a manner as to leave from one to two laterals on the original frame work branches, bearing in mind that these branches should have an upright tendency, and cut them in turn back at least one-half. In subsequent years this same method of thinning out and shortening in should be followed, and this cutting should be quite severe for at least five years. This promotes sturdiness in the tree and a healthy uniform growth, also a broad bearing surface, many small lateral fruit bearing branches, and naturally more fruit than an unpruned tree, the growth of which, if not checked, would consist of several straight, upright shoots with all the fruit bearing branchlets in the top. In case of a heavy crop, these branches being without any natural braces, which would have developed by pruning, would bend over and in many instances break off. After a number of years the shearing off of the small laterals will cause many so-called "crows-nests" to form in the trees, and the new growth will be rather weak. It will be at least 15 years before the trees will reach this stage, but when they do there should be no hesitancy in cutting them back severely and thinning vigorously, to promote a strong, new growth. Even before this age the trees will have a large amount of inside growth, which, when it is no longer productive, should be cut out entirely. This does not mean necessarily that the trees should be thinned out like a peach, for this would be a mistake, but that wood which indicates by its appearance that it has lost its vitality should be removed, for it will soon be replaced by new wood.

PLANTING AND PRUNING.

Too many trees to the acre was one of the first mistakes made in the early plantations. The erroneous idea that planting more trees to the acre results in a larger tonnage has been well exemplified in the beginning of olive culture. In all the early plantings trees were set 20 feet apart, while today we would advise that no trees, even on very sandy land, be planted closer than 25 feet, and for the general run of soils 30 feet would be better, and on exceptionally rich land we would advise that the trees be set 35 feet apart, square or equilateral system.

In our early experience in planting olives 25 years ago we encountered so many difficulties in transplanting the trees from the nursery to the orchard, that we concluded it was not practical to plant 2 or 3-year-old trees, so that in our first orchard on the Roeding Place, planted in 1889, the plants were taken from 3-inch pots. The difficulty of keeping these trees alive during the heat of the summer months was an experience we shall never forget. Today the transplanting of an olive is a comparatively easy matter. As soon as the trees are taken up the top growth of the lateral branches is all shortened in. Years of experience has dictated the importance of this step. Still our customers have occasion to criticise us severely at times for the barbarous treatment we give their trees, and they will not follow our precise instructions to again cut the trees to 20 inches after being planted and shorten in the lateral branches to 3 inches. As one of our friends recently remarked to us: "There was as much sense, to his notion in cutting off the top of the tree as there would be in his cutting off his arm." We reminded him that he did have his hair cut and it grew again. He was one of those fortunate fellows who had some to cut. All the arguments which the laymen may use to the contrary, we must again repeat most emphatically that more trees are lost through the failure of the planter to cut them back than from any other cause.

The roots of an olive tree are very sensitive to exposure. As soon as they are taken out of the trenches and prior to planting, all bruised and lacerated roots should be cut off and a new cut

CULTIVATION AND FERTILIZING

It is the same old story—if you want results you must study conditions, and rest assured that the closer attention

A two year old olive tree pruned but it was not cut severely enough. The upper picture shows same tree pruned as it should be. The main frame work branches should have been more widely distributed at the time the tree was started.

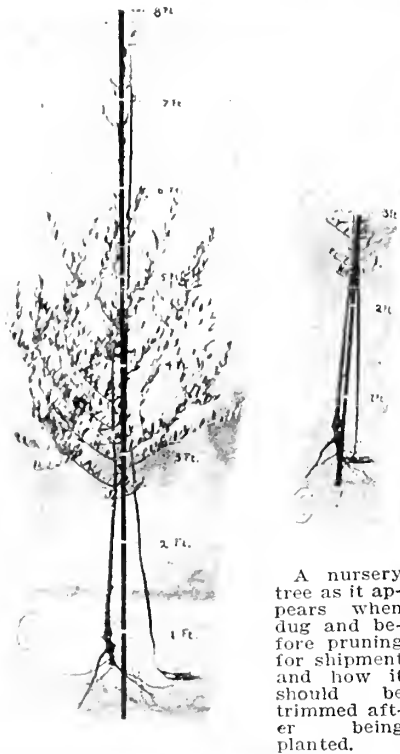


A four year old tree beginning to assume the form it should have. Such trees are only obtained by a systematic method of pruning.

you give to the cultivation, irrigation and fertilizing of your grove, the greater will be the results; your returns be in proportion to the thought you give in maintaining it to its highest point of efficiency. As to the plowing and cultivating, no fixed rule can be laid down, except that thorough work in this direction is important. Under average conditions and proper attention to the stirring of the soil, three irrigations would be ample for a grove in the San Joaquin valley. There are two periods which are important: the first irrigation should take place in April just before the olive blooms, and this usually occurs in the latter part of April or the early part of May; if the rainfall has been ample and the soil is well charged with moisture this irrigation may be dispensed with. The second irrigation should be given in the middle of the summer, and the third in September. This last irrigation should never be omitted. The difference in price between third grade olives and strictly fancy is influenced by the use of water at this time. Olives to mature properly require a good rain in early October, and when trees receive the stimulating influence of the rain from above and the artificial application of water to their roots, the olives run into the larger sizes; they are full of oil, and consequently the grower and the packer are both happy. It is useless to fool yourself by going on year after year to harvest crops of olives no matter how rich your soil may be, without making some return to the land for the constant drain you are subjecting it to. We do not propose to give a dissertation on fertilizing in discussing this subject, simply because information is to be had on every hand, and the grower must regulate his expenditures by the condition of his pocketbook. Just bear one point in mind: that none of us can live on air and water, and your trees are no exception to the rule. Feed them and they will feed you. Do not go on applying fertilizers year after year after you have once got the habit without putting in a cover crop occasionally to add humus and life to the soil. The fertility of the soil must be maintained at all hazards, and this is the simplest and cheapest way to do it.

HARVESTING.

This is one of those fixed expenses which is never lost sight of and cuts the most important part in the cash receipts of the grower.



A nursery tree as it appears when dug and before pruning for shipment and how it should be trimmed after being planted.

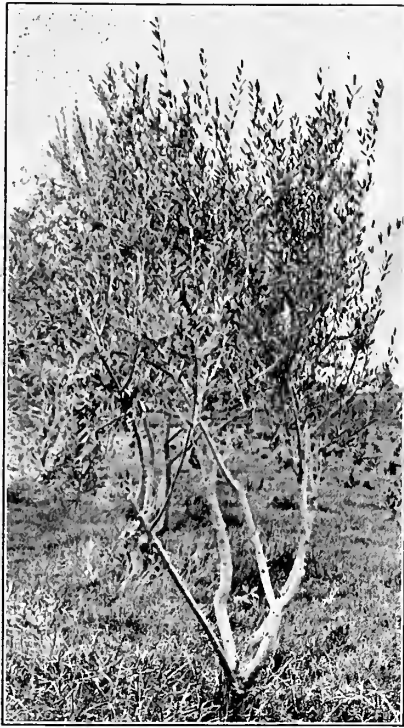
to the surface, if blasted. Wherever the hard pan is 2½ feet from the surface it should be blasted before planting.

We have had occasion to observe a number of times where olives were not only thrifty, but bore very excellent crops on lands so heavily impregnated with alkali, that a vineyard and orchard of deciduous fruit trees were killed. On a deep alluvial soil the trees not only make a remarkable growth, but by properly pruning the new growth on the trees they will bear fine crops of extra large olives.

The dry-bog land of the foothills of the lower Sierra Nevada mountains seems to be particularly adapted to olive culture. The trees not only take on a rich luxuriant color, but the olives ripen fully two weeks earlier and the fruit runs into the largest sizes. On this character of land, underlaid with marl, which is very destructive to orange trees, killing them within a few years, it has the very opposite effect on the olive.

From our observations here and abroad, we are of the opinion that the finest pickling olives will be grown in

LIFE IS TOO SHORT TO PUT OFF PLANTING YOUR ORCHARD TILL NEXT YEAR—DO IT NOW.



No pruning at all is responsible for the bare stems on this tree. All the fruit bearing branches in the top. To bring this tree back to its proper form its entire top would have to be sacrificed.

It costs considerable more money to gather ripe olives than green, because in order to secure the color the packer demands, it is necessary to go over the trees several times. As the industry grows into commercial importance the green olive, which is a recognized commercial article, as is evidenced by our importations, will have its place in the market, and from the growers' standpoint, this is to be encouraged because in years of a very heavy crop when the trees are overburdened, thinning out of the olives causes those remaining to expand and mature much earlier than they would if all the olives were allowed to remain on the trees. It is a well known fact that olive trees when overloaded with olives are very slow to take color, resulting in the grower's losing the better returns which he would receive for his pickling olives in such localities in which early frosts may occur. As a general rule olives are never damaged by frost unless it reaches 29 degrees Fahrenheit, and the Mission olive will even stand a lower temperature than that.

The cost of gathering ripe olives is from \$18.00 to \$20.00 per ton, and green olives of a size adapted to pickling \$15.00 per ton. The most satisfactory receptacles for harvesting are canvas bags, such as are used in picking oranges.

Olives seriously damaged by frost and unfitted for pickling are not affected in the least for oil purposes. Frosted olives make just as good oil as olives that have not been damaged. The only effect of the frost is the breaking of the tissue and the drying up of the water in the fruit. Oil olives can be gathered at a cost of \$10.00 to \$12.00 per ton. The most expeditious method of gathering is to spread two pieces of canvas 12 by 24 feet under the trees and strip the olives by hand. A wooden comb with teeth far apart is the best tool for this purpose.

BEARING AGE

The olives will not come into bearing until five years old. Allow them to grow in a haphazard fashion and the trees will bear much earlier than this. What is the result? The vigor of the tree is sacrificed to secure a crop when every effort should have been made to build it up and cause it to respond by producing bounteous crops of fruit when it had reached the bearing age. A man who would attempt to force a

child to do a man's work would be severely condemned, and generally reprimanded. Why is not a man who demands impossibilities from his trees in relatively the same position?

DO OLIVES PAY?

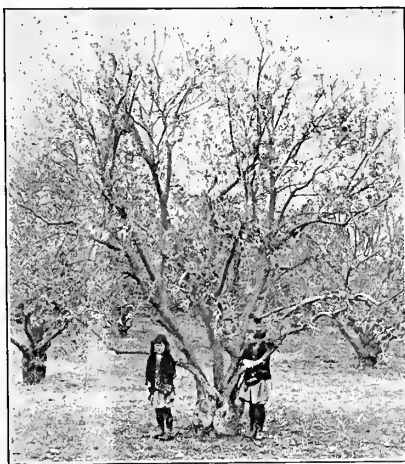
At five years old an olive will produce 1000 pounds of fruit to the acre; at seven years 2000 pounds, and at ten years 4000 pounds and over, and in subsequent years there will be more or less variation from this quantity, depending on weather conditions when the trees are in bloom. It is the consensus of opinion that olives bear every other year—that is, that a very heavy crop is often succeeded by a light crop. There is some truth in this, but it does not always work out in actual experience.

An Italian proverb says when olives bloom late the crop is light, and we notice that this is invariably the case. However, olives bloom entirely too late—very rarely being in full bloom before the middle of May—to be damaged by frost, and in years of heavy bloom, followed by a light crop, there are several causes responsible for this condition. One is rain while the trees are in the height of bloom, another strong wind; but according to our observation trees which have not been pruned in which the young bearing pruned the young bearing wood is lacking in vitality, is responsible for the lack of fruitfulness in many cases.

CROSS POLLINATION.

Cross pollination is said to cut an important factor in this situation. It is an extremely interesting matter and one that can only be determined by years of careful scientific research. It is easy for a layman to advance conclusions in this matter, but unless backed up by scientific deductions, such statements are not worth the paper they are written on.

In our own orchards we have Nevadillo Blanco and Mission among a large block of Manzanillo; we have Pendulina, Rubra, Obliza, Atroviolacea rows of 60 trees of each one of these varieties adjoining rows of Sevillano, Ascolano and Manzanillo, and although these oil types would be loaded with fruit, no difference was observed between the bearing of the pickling olives immediately adjoining these rows and those further in. We do not wish to be misunderstood in this matter. We do not insist there is nothing in cross pollination, for we believe there is, but we have no concrete facts to present in proof of the supposition.



One of these trees which were shown on the first page cut back very severely to promote a new growth of vigorous new wood. Surprising as it may seem these trees will have a fair crop of olives this season. See how strong the main frame work branches are and the number of laterals from the bottom up to the very top. Trees like this are the result of years of careful pruning and a proper study of their habits. The swellings at the base of this tree are the so-called truncheons which are chisled off and so largely used for propagating olives in Europe, Asia and Africa.

DEMAND OFTEN OUTRANKS THE SUPPLY.

You must be educated to eat a green pickled olive. Not so with the ripe product, at least judging from the demand, which has increased by leaps and bounds—the American people have taken to ripe olives like a duck does to water. So much so, is this the case, that excessive prices have been paid in many cases for the raw product. It is safe to say that for many years to come good average pickling olives will sell at from \$125.00 to \$175.00 per ton, and the exceptionally large olives, like the Ascolano and Sevillano, at \$200.00 to \$225.00 per ton. A ton of olives makes 300 gallons of pickles. Oil olives, and this means all varieties whether they are oil olives or pickling sorts, which are not merchantable for pickling, will bring from \$45.00 to \$65.00 per ton. One ton of oil olives produces from 35 to 40 gallons of oil. The age of an olive tree is an indeterminable quantity, except that the trees even when they do not receive anything like good care, as we have often observed in the olive countries of Europe, outlive many generations of a family; so it is safe to assume that when they receive good attention, as they surely will in California, their existence will be measured in centenary periods.

VARIETIES

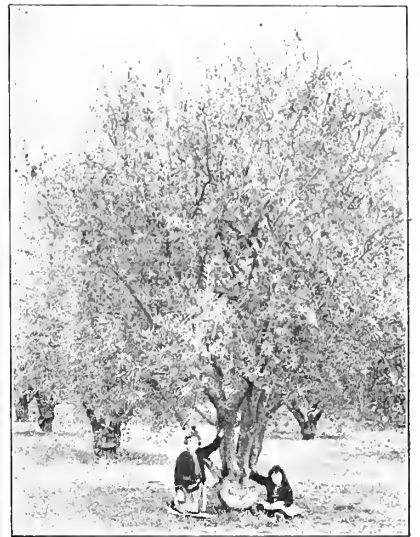
When it comes to deciding what varieties of olives to plant, there are two sharply defined lines, with the oil olive on one side and the pickling olive on the other. When the interest in olive culture first manifested itself planters were at a loss to determine which branch of the industry would prove more profitable, and oil varieties were planted just as extensively as pickling sorts.

All this is changed now, and the planting has been confined to a very limited number of kinds, with a demand exclusively for those adapted to pickling. Bear in mind that a good pickling olive in most instances also makes good oil, the only difference being that some of the pickling sorts will not make as much oil to the ton as a strictly oil olive. The decision to plant olives adapted to pickling purposes can be readily understood when it is borne in mind that the olive which can be used for pickling brings three times the price that an exclusively oil olive will sell for. Thus far no difference has been made by buyers in the price paid for oil olives, while in the matter of pickles there has been a very decided gradation in this respect.

The two olives which have practically been the standards for planting have been the Manzanillo and the Mission. For a number of years and up to this season the Mission has always had the preference, and it was only on our absolute refusal to sell the Mission olive trees alone and insisting on our customers taking part of their orders in Manzanillo that we succeeded in selling this variety at all. This year there has been a reversal of conditions—every order that comes in is practically for Manzanillo. There can be only one reason for this change as far as we have investigated: The Missions were slow in ripening in many districts this season and were badly damaged by severe frosts in late November, while the Manzanillos were practically all harvested before this frost occurred.

THE ASCOLANO

The Ascolano is regarded very highly and is a superior pickling olive, but it does not color well; and although it matures early it is inclined to be soft, bruising easily, therefore not a very good olive for long distance shipment. The olive averages quite large in size, the tree is a strong grower, and a heavy bearer. When pickled the olive is of an excellent flavor.



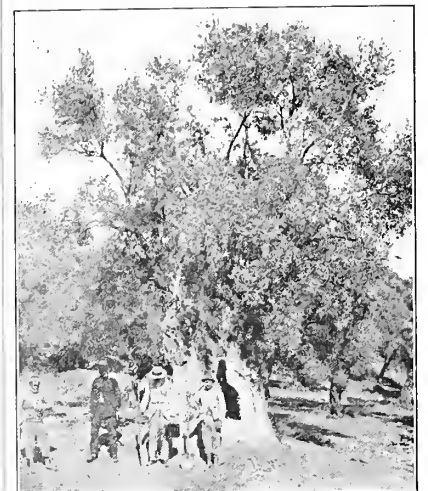
This tree was severely cut back three years ago. See the density of its growth now. A beautiful specimen and capable of carrying a tremendous load of fruit and with everything in its favor to do so on account of its large bearing surface.

THE MANZANILLO

This is the olive so extensively used for making pimento olives. Its season of ripening is fully two weeks earlier than the Mission. The olives average large in size and are almost round. The flesh is considerably softer than that of the Mission. When dead ripe the olives, if the pickling should be delayed too long, will break down while being processed. This olive is well adapted to green pickles, and although it makes a highly flavored ripe pickle, it lacks the delicate flavor which has made the Mission so popular.

THE MISSION

The Spanish Padres were great lovers of fruit, and the fact that even today their introductions in every line should be still recognized as standards remind us that they were peculiarly gifted in this respect. All arguments to the contrary, the Mission stands in the same relation to other olives as does the Washington Navel to other oranges grown in California. The habit of the tree is exceptionally good, and it is so easily trained by average good judgment in the use of pruning shears that it makes a most striking tree. The olives are oval in shape, very firm, and are never troubled with dry rot. Their resistance to frost damage, with all their other good points, will always place them perma-



An old gnarled Giant growing in an orchard of several hundred thousand trees over the ruins of the ancient city of Tralles, Asia Minor. The men in the foreground are digging out antiquities mostly marble building materials, many of them being of considerable value, but the Turks use them for making lime. Their appreciation of these old classic things is marked by their utter disregard of their value.

ROEDING'S PRACTICAL HORTICULTURE



A sprig of Mission olives, natural size.

nently in the front rank, when compared with other olives. They take on a beautiful dark luster when pickled. Very few of them become soft, and their flavor is of the very best.

THE OBLIZA

The tree is of a dwarfish habit. The olives are large, ripening early in this district; some of them are ripe by the latter part of September. It is an easy olive to pickle, and very firm, but rather inferior in flavor, as it is tough and tasteless.

THE SEVILLANO

This is the olive known to the trade as "The Queen." The olive attains a much larger size with us than it does in Spain, often weighing one ounce apiece. The tree is very ornamental, and when loaded with olives is a sight which is not often seen. As a green pickle much can be said in its favor, but when pickled ripe it is hard and woody. Good to look at, but poor to eat.

METHODS OF PICKLING

How to make our green olives when turned out as a finished product compare favorably with the imported goods was the desideratum we all aspired to thirteen years ago. Information from Spain and Algeria, the two points from which practically all of our green olives came, was so misleading that men who were experienced in this class of work knew that if the instructions given were followed the olives would be ruined.

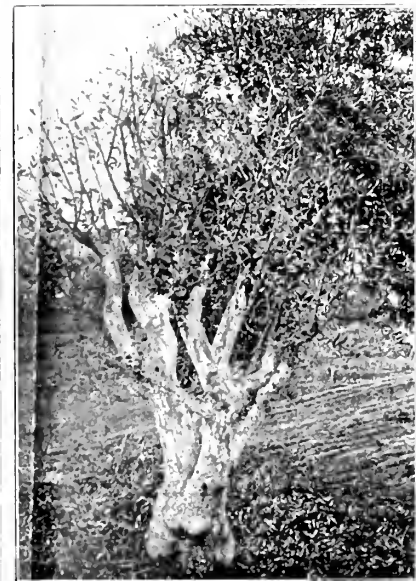
In order to make green olives similar in appearance and flavor to the imported olive, the process extends over a period of six months. Briefly, the process is as follows: First the

olives are graded and sorted, being reasonably careful to get the olives that are to be treated of a uniform size. Figuring on the basis of 250 pounds of olives to the barrel, which will take 30 gallons of water to cover them, in which 4 pounds of lye should be dissolved before pouring it over the fruit. It takes from 12 to 18 hours to cut the olives the desired depth—about one-third through. The rapidity of the cut depends on the condition of the fruit. Stir the olives thoroughly every half hour while processing, to get them to cut evenly and to retain a uniform color.

The best implement for stirring is a shovel made the same shape as an ordinary shovel, except that the blade and handle are all of wood. After the olives are cut to the desired depth wash them in fresh water each day for about 5 days, or until all lye has disappeared. Then commence the use of salt or brine, using a 10 degree brine, changing same every forty-eight hours, for 8 days. The olives will not shrink after they have taken a little salt. Fill barrels full of olives, head up in 30-degree or 10-ounce brine to finish curing, and roll the barrels, bung up, into the open. In case of warm weather when the olives are placed in barrels it is advisable to keep them in a covered shed for a couple of weeks to retard fermentation. As the curing of green olives is in the late fall months, and the weather is cool, they may be rolled out into the sun immediately. Do not drive the bung too tight. Every few days following this examine barrels carefully, and if the olives are not fully covered with brine replenish with a 30-degree brine solution. Every two weeks add from 1 to 1½ pounds of salt and see to it that the brine in the barrel registers from 27 degrees to 30 degrees on the salometer. As soon as fermentation is practically over with, the barrels should be bunged up tight. They will require no further attention after this except to examine them occasionally to see that the brine has not leaked out.

RIPE OLIVES FOR HOME CONSUMPTION.

Place olives in any wooden receptacle or earthen jar. Cover them with water, being careful to use water which has been cooled by the night air. After one day's soaking in this water draw it off and cover the olives with water in which 2½ ounces of lye to the gallon of water has been dis-



Two-year-old grafts on a 20-year-old tree. They have just been pruned back and thinned out very severely. The old growth on this tree will be cut off this year and the remaining branches grafted. It is a mistake to leave the old growth on the side of the tree, as in this case. It should have been left in the center to more effectively protect the branches from sunburn.

solved. After pouring this over the olives stir them carefully for 15 minutes, and after that every half hour. If after 14 hours the lye solution becomes neutralized, slowly add lye at the rate of one-half ounce to each gallon of water. Allow the olives to remain in the solution until penetrated half way through. Draw the lye solution off and wash olives thoroughly until the water is clear. Change water twice daily for four days. Treat olives again as before until penetrated almost to the pit. Rinse as before, and immerse olives in fresh water, changing twice daily until all trace of lye is removed. Now, cover olives with a 4-ounce brine, changing same every 4 days for 12 days, being careful not to increase the strength of the brine. Draw off old brine and replace with new, gradually increasing its strength until it is up to eight ounces of salt to the gallon of water, when the olives will be ready for the table. It takes fully six weeks to cure them by this method. Use a good grade of half-ground salt.

THE COMMERCIAL PACK.

Soak olives over night in cold water. Drain it off. Cut with a 2¼-ounce lye to within one-third of the pit. Draw off, and soak in 3-ounce brine for five days. Draw this off and expose to the air in the tank for five days. Then

HOW TO MAKE OLIVE OIL

When the olives are received at the packing house they are run through a fanning mill or an aspirator to remove all dirt or leaves. Leaves, even when left in, do not seem to impair the quality of the oil. The olives are next crushed between heavy corrugated iron rollers, operated by steam power. In crushing, the pits as well as the pulp of the olives are reduced. It has been found impracticable to do otherwise, and the statement that has been made that an inferior article is produced when the pits are crushed is a fallacy, just as much so as that the virgin oil comes from the first pressing. This is good trade talk, but is never carried out in actual good practice. The first pressing is usually light and the resultant product is practically all water, very little oil.

Before making the second pressing the pomace is again crushed and is then placed in a large press which exerts a pressure of about 200 pounds to the square inch. This is followed by another crushing and pressing, the pomace having been previously steamed so as to cause it to more readily release the oil. Previous to placing the pomace in the press again, however, it is worked up by the rollers. The oil and water from the presses are run into settling tanks. Here the oil



A group of packages showing a few of the styles used by the Roeding Olive Company of Fresno in marketing its products.

cut again with a 1-ounce lye to the gallon of water for 18 hours. Drain this off. Expose to the air for four days to set color. Cover with fresh water, changing daily for five days. Draw this off and replace with 6-ounce brine. If bitterness is rather marked gradually increase brine, but do not place in lye again to neutralize bitterness, as it will ruin the olives.

CANNING RIPE OLIVES

Olives are canned in a brine containing four ounces of salt to the gallon of water. After the olives are in cans they are run through an open exhaust, lids off, registering 212 degrees Fahrenheit. Gallon cans are given eight minutes, 2-pound cans 3 minutes. The olives are then placed in boiling water and are cooked as follows: gallon cans fifteen minutes, 2-pound cans eight to ten minutes. If the olives are firm and can stand a longer cook, it is advisable to give them all they will stand, for if not properly cooked the cans will swell. The length of time for cooking depends on the variety and the condition of the fruit, so that no fixed rule can be laid down for their treatment. This must be determined by the man in charge.

remains for 48 hours, when it is skimmed off into storage tanks, remaining in same until ready for racking. These tanks are either built of galvanized iron although some of the large olive oil concerns use glass lined tanks for storage purposes. After the oil stands in the tanks for six months it is ready for bottling. The oil goes through a sort of fermentation during this time, and all impurities settle to the bottom. Before marketing the oil is filtered through several thicknesses of filtering paper to still further clarify it. California oil makers take great pride in the purity of their goods, and the oil can be relied upon as strictly pure—just as represented.

SEASONS FOR TRANSPLANTING

The vitality of the olive tree is simply astonishing. Trees 20 years old can be taken up in March, have tops severely shortened in and safely transplanted. The best time to take the trees from the nursery is from March 15th to June 1st.

GRAFTING.

Just recently we have prepared a paper giving full and detailed information on the subject of working over the olive and other trees. Parties who are interested may have the paper for the asking.

THERE IS A WONDERFUL FUTURE FOR THE OLIVE INDUSTRY IN CALIFORNIA.